WHAT IS CLAIMED IS:

1. A computer-readable storage medium for storing a shadow volume generation program that causes a computer to generate a shadow volume used for rendering a shadow cast by an object placed in a three-dimensional virtual space, wherein the shadow volume generation program causes the computer to execute the steps of:

writing a Z value corresponding to each pixel within a predetermined area including at least the shadow casting object, into a Z-buffer, using a light source placed in the virtual space as a viewpoint; and

generating the shadow volume from a plane object by determining a position of each vertex of a plurality of polygons composing the plane object, with regard to a direction perpendicular to a surface of the plane object in accordance with the Z value of each pixel written in the Z-buffer.

2. A storage medium according to claim 1, wherein

a shape of the plane object is defined by a plurality of vertices, each having different combination of an X-coordinate and a Z-coordinate, and

in the shadow volume generation step, a Y-coordinate of each vertex of the plane object is determined in accordance with the Z value of each pixel written in the Z-buffer.

3. The storage medium according to claim 1, wherein

the light source is a point light source, and

the shadow volume generation step includes a step of determining a position of each vertex of the plane object with regard to a direction parallel to a surface thereof in accordance with the Z value of each pixel written in the Z-buffer.

4. The storage medium according to claim 3, wherein

a shape of the plane object is defined by a plurality of vertices, each having a different combination of an X-coordinate and a Z-coordinate, and

in the shadow volume generation step, the X-coordinate and the Z-coordinate of each vertex of the plane object are determined in accordance with the Z value of each pixel written in the Z buffer.

5. The storage medium according to claim 1, wherein

the shadow volume generation program further causes the computer to execute the steps of:

placing the shadow volume generated at the shadow volume generation step in the virtual space in a virtual manner so that a height direction of the shadow volume coincides with a direction of light emitted from the light source, and

rendering the shadow of the shadow casting object using the shadow volume placed in a virtual manner.

6. A game device for generating a shadow volume used for rendering a shadow cast by an object placed in a three-dimensional virtual space, comprising:

a Z-buffer;

a Z value writing means for writing a Z value of each pixel within a predetermined area including at least the shadow casting object, into the Z-buffer, using a light source placed in the virtual space as a viewpoint; and

a shadow volume generation means for generating the shadow volume from a plane object by determining a position of each vertex of a plurality of polygons composing the plane object, with regard to a direction perpendicular to a surface of the plane object in accordance with the Z value of each pixel written in the Z-buffer by the Z value writing means.

7. A shadow volume generation method for generating a shadow volume used for rendering a shadow cast by an object placed in a three-dimensional virtual place, comprising the steps of:

writing a Z value of each pixel within a predetermined area including at least the shadow casting object, into the Z-buffer, using a light source placed in the virtual space as a viewpoint; and

generating the shadow volume from a plane object by determining a position of each vertex of a plurality of polygons

composing the plane object with regard to a direction perpendicular to a surface of the plane object in accordance with the Z value of each pixel written in the Z-buffer.